

September 12, 1988

Dear Manufacturer:

CD-88-15 (LD)

SUBJECT: Use of SG Energy Conserving II Oils

EPA has recently approved the use of SG and Energy Conserving II (EC II) classified engine oils for use in certification and fuel economy test vehicles. SG is the latest American Petroleum Institute (API) service designation and EC II is the latest energy conserving category. Enclosed are copies of correspondence with General Motors Corporation regarding their request for approval. This correspondence is made publicly available as an example of one way to satisfy the criteria for approval to use a specified oil in test vehicles. The criteria are specified in EPA's policy memorandum of January 16, 1978. A copy of this memorandum is also enclosed for your information.

Both the SG and EC II designations have been approved by The Society of Automotive Engineers (SAE), The American Society for Testing and Materials (ASTM), and API. The API service description states that the SG oils "...provide improved control of deposits, oil oxidation, and wear relative to oils developed for previous categories." Oils must have at least a 2.7 percent fuel economy improvement factor over a reference oil to be designated as EC II whereas oils designated by just "Energy Conserving" (EC) must have a 1.5 percent improvement relative to the same reference oil.

Many manufacturers are already recommending these new oil classifications, and because the SG oils exceed the requirement of the SF oil designation, manufacturers may recommend SG oil to customers if SF oils were used in test vehicles. Also, manufacturers may recommend the use of EC II oils to customers when EC oils were used in test vehicles. We anticipate these manufacturers will also request their use in emission and fuel economy test vehicles. Our response to GM on such a request serves as guidance to other manufacturers.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosures

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ANN ARBOR, MICHIGAN 48105

OFFICE OF
AIR AND RADIATION

August 2, 1988

J. J. Krauss
Manager, Vehicle Operations
Emission and Fuel Economy Operations
General Motors Corporation
General Motors Proving Grounds
Milford, Michigan 49042

Dear Mr. Krauss:

With this letter, we are approving your request, made in your letter of July 25, 1988 (ML-LG023), to use SG/Energy Conserving (EC) II multigrade engine oils for 1990 model year emission certification and fuel economy vehicles.

This approval is conditioned upon GM's adherence to the following practices:

1. GM clearly recommends the use of SG/ECII multigrade oil as the preferred oil in its owners manual instructions. Also, we encourage GM to continue its practice of identifying the recommended service, viscosity, and energy conserving classifications on the oil filler cap or other appropriate location on the vehicle.
2. GM selects oils for its test vehicles which represent what its customers will use in terms of potential fuel economy improvement. GM's proposal to limit the fuel economy improvement factor (measured under the ASTM sequence VI method) to no greater than 2.9 percent is an acceptable practice to satisfy this criterion. As ECII oils actually appear in the market place and GM is able to demonstrate that the market share weighted average fuel economy improve-

ment factor is greater, GM may select oils which have a percent improvement factor which is not greater than such an average.

3. GM uses a factory fill oil which has a fuel economy improvement factor which is equal or better than that used in the corresponding test vehicles.

We concur with your analysis of the projected availability of SG/EGII oils and expect that such oils will be reasonably available, at a competitive price with other oils on the market, by the time your 1990 model year vehicles approach their first required oil change in field operation. SG oils are already available. It still remains to be seen whether projections regarding the availability on ECII oils will come to pass. We will continue to monitor the developing availability of ECII oils. If the expected availability does not develop, it might be necessary for us to reconsider our approval of ECII oil use in the future.

We encourage GM to do all it can to keep the pressure on the oil industry to provide these oils as soon as possible. Certainly, your recommending such oils to the customer will go a long way in this regard. However, we also encourage GM to do anything else it can to attract customer attention to the fact the energy conserving "II" oils are desired over oils just marked "energy conserving." If customers do not notice is subtle difference, there might not be as much market pressure on the oil industry to provide the ECII oils.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

July 25, 1988

ML-LG023

Mr. E. A. Bontekoe, Team Leader
Certification Branch
Certification Division
Mobile Source Air Pollution Control
U.S. Environmental Protection Agency
2565 Plymouth Road
Ann Arbor, MI 48105

Dear Mr. Bontekoe:

Subject: Request for Approval of SG/Energy Conserving II Multigrade Engine
Oils for 1990 Emission Certification and Fuel Economy Vehicles

General Motors received EPA approval to use SF Energy Conserving multigrade engine oils for 1982 emission certification and fuel economy vehicles. Now, due to advances in engine oil technology, General Motors requests EPA approval for the use of SG/Energy Conserving II multigrade engine oils for 1990 and later model year emission certification and fuel economy vehicles. SG is the latest service designation, and Energy Conserving II (EC II) is the latest energy conserving category. Both have recently been approved by ASTM, SAE and API.

First, General Motors intends to use SG engine oil in certification and fuel economy vehicles. SG multigrade engine oil will provide either equivalent or superior performance to SF oil in all categories.

- o SG oils will provide performance improvements over SF/CC oils in the following areas:
 - low-temperature sludge
 - valve train wear
 - oxidation
 - high temperature deposits
- o SG oils will provide equivalent performance to SF/CC oils in the following areas:
 - rust and corrosion
 - bearing corrosion
 - oil consumption

General Motors feels that SG is the next progression in providing improved engine protection and durability for our customers.

In addition, General Motors requests EPA approval for the use of EC II engine

oil in certification and fuel economy vehicles. General Motors Research Laboratories has conducted a survey to determine the availability of SG/EC II engine oils in the next six to twelve months. From contacting the oil

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July 25, 1988

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companies, we have found that all of the top 13 engine oil producers, representing over 80% of the total market share, will market an SG/EC II engine oil in both SAE 5W-30 and SAE 10W-30 grades by June of 1989.

In order to qualify as an EC II oil, a fuel economy improvement factor of 2.7% is required. Please note that this number is based on a new ASTM test procedure and reference oil compared to the original energy conserving definition. The new method, the Sequence VI engine dynamometer method, uses different reference oils (HR-2, HR-3, HR-4 and HR-5). In order for a candidate oil to be categorized as EC II, the fuel economy improvement factor must be a minimum of 2.7% relative to one of these reference oils. Use of the original 5-car method and reference oil HR are not allowed for EC II category determination. Please see Attachment I for a graphical illustration of the two test procedures.

General Motors Corporation hereby petitions for approval of SG/EC II multi-grade engine oils in our 1990 and later model year emission certification and fuel economy vehicles on the basis that the four criteria stated in Mr. E. O. Stork's letter of January 16, 1978, have or will be satisfied.

First Criterion

"A generic means of defining such oils, so that reference could be made to them as a class rather than (as is now the case) only in terms of brand names;"

This criterion has been satisfied by the ASTM boundaries now being self-imposed by the oil suppliers. The oil suppliers will market oils with a symbol similar to the following symbol which will clearly distinguish both SG and EC II.

Symbol is stored as CD8815_1.PCX

Second Criterion

"General availability of such oils in normal retail channels;"

As previously mentioned, the top 13 oil companies, representing over 80% of the total market share, have informed General Motors that they will be marketing an SG/EC II engine oil in both SAE 5W-30 and SAE 10W-30 viscosity grades (the only two viscosity grades recommended for use by General Motors) in the next six to twelve months. Therefore, we feel that the SG/Energy Conserving II multigrade engine oil will be available in normal retail channels in time for the 1990 model year introduction (normally September-October time frame in 1989). Past experience has shown a rapid increase in

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the availability of improved grades of oil soon after their introduction, insuring that these oils will be readily available before most 1990 vehicles will require their first oil change.

Third Criterion

"Retail prices for such oils sufficiently near the retail prices for currently used top-grade oils so as to make it likely that the generically-defined synthetic or modified oils will actually be used;"

Informal discussions with several of the major motor oil manufacturers indicate that they will market the SG/EC II engine oil at either no increase or a slight increase in price.

Fourth Criterion

"Recommendations by manufacturers in owners manuals regarding the use of such oils and, if the retail cost of such oils is higher than the retail cost of other top-grade oils, possibly the conditioning of the manufacturer's warranty on the use of the generically-defined synthetic or modified oils."

For passenger car applications, General Motors currently recommends SG multigrade engine oils (either SAE 5W-30 or SAE 10W-30) for 1989 and will recommend only SG/EC II multigrade engine oils in these viscosity grades for 1990.

In addition to the above EPA criteria, General Motors will use oils in our 1990 certification and fuel economy testing fleet that represent what our customers will use in terms of potential fuel economy improvement. General Motors intends to select only those EC II oils for our 1990 data fleet having fuel economy improvement factors between 2.7% and 2.9%. This is justified on the basis that a minimum 2.7% improvement factor is required to qualify for the EC II designation. In order to allow for production variability, oil producers will have to target somewhat above this minimum. The 2.7% to 2.9% range is requested because it represents a conservative average range that might be expected.

We believe that we have demonstrated compliance to the criteria established by Mr. E. O. Stork's letter for the 1990 certification year. We ask that you act on this request as soon as possible since our 1990 data fleet builds are already in process.

Yours truly,

J. J. Krauss
Manager -Vehicle Operations
Emission & Fuel Economy Operations

JJK/MCW/ks/2246a
Attachment

Attachment I stored as CD8815_2.PCX

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON D.C. 20460

OFFICE OF
AIR AND WASTE MANAGEMENT

JAN 16 1978

Mr. Charles M. Heinen
Director, Emissions/Fuel Economy
Certification and Materials Engineering
Engineering Office
Chrysler Corporation
P.O. Box 1118
Detroit, Michigan 48231

Dear Mr. Heinen:

This will respond to your letter of December 22, 1977, asking whether EPA will permit the use of lower viscosity or synthetic engine oils in the 1980 and 1981 light duty vehicle and light duty truck certification programs. You asked the question in the context of the National Highway Traffic Safety Administration's projections of fuel economy improvements available through the use of such oils.

Our staff recognize that there are potential fuel economy benefits from the use of synthetic or modified oils that are beginning to be marketed, although we are not currently in a position to precisely quantify these benefits. We have already, as you know, had requests for approval of the use of such oils, or of oil additives such as molybdenum disulfide (Moly). Up until the present time, we have denied approval for their use.

EPA is, of course, interested in seeing used, and in fact in fostering and promoting the use of, any means that genuinely contribute to improved fuel economy or to lower emissions. Nevertheless, it is essential that in our test program we assure to the degree that it is possible to assure that test vehicles on the basis of which fuel economy and emission data are generated are represen-

tative of vehicles as they will be built and of how they will be used in service. Thus, until we can have a reasonable basis for making a finding that synthetic or modified oils are likely to be used in service in vehicles which are tested with such oils, we cannot approve the use of such oils in test vehicles. At present, we have no reasonable basis to make the requisite finding.

As we have discussed informally with elements of both the automobile and the oil industries, a reasonable basis for the finding we believe that we must make prior to approving the use of synthetic or modified oils in test vehicles would include the following:

1) A generic means of defining such oils, so that reference could be made to them as a class rather than (as is now the case) only in terms of brand names;

2) General availability of such oils in normal retail channels;

3) Retail prices for such oils sufficiently near the retail prices for currently used top-grade oils so as to make it likely that the generically-defined synthetic or modified oils will actually be used; and

4) Recommendations by manufacturers in owners manual regarding the use of such oils and, if the retail cost of such oils is higher than the retail cost of other top-grade oils, possibly the conditioning of the manufacturer's warranty on the use of the generically-defined synthetic or modified oils.

I do not mean to suggest that the foregoing are hard and fast conditions precedent to our approving the use of synthetic or modified oils for emission certification and fuel economy testing; rather, the foregoing is intended to be illustrative of one way in which we could reasonably make a finding that the use of such oils in service is sufficiently probable to permit us to allow their use in certification and fuel economy testing. We are open to be shown other ways in which we might be able to make such a finding.

In view of the potentially widespread interest in this issue, I am placing a copy of your letter, and of this response, in EPA's Public Information Center.

Sincerely,

Original Signed By
Eric O. Stork

Eric O. Stork
Deputy Assistant Administrator
for Mobile Source Air Pollution Control